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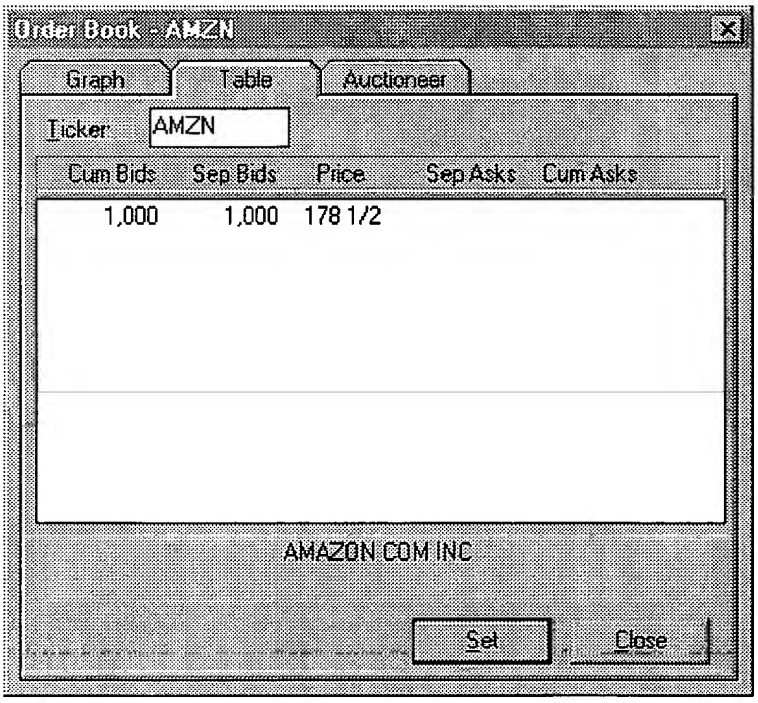
The AZX Call Market

A Demo Auction of AMAZON.COM

Please scroll through the following set of slides to see a demonstration of an AZX auction. AZX is a call market, or single price auction, for stocks. The purpose of a call market is to gather many buy and sell orders together at a single point in time to create a large, multi-party trade at a single price.

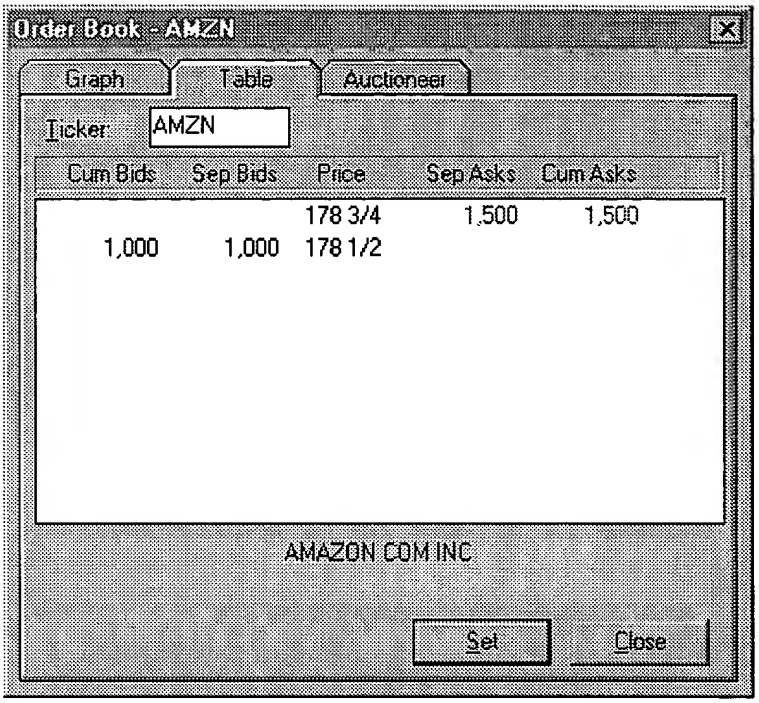
In the regular continuous market, there are many small trades at volatile prices, almost all of them between only 2 parties. The call market aggregates orders so there is one large trade between many parties at a consensus price. This type of trading system, or "price discovery" mechanism, will allow investors to trade large sizes at a price which will be viewed as fair - because the price was determined in a competitive auction and because many others are trading at that same price.



Time remaining in Demo Auction: 00:29:59

The Auction opens. The clock begins ticking down.

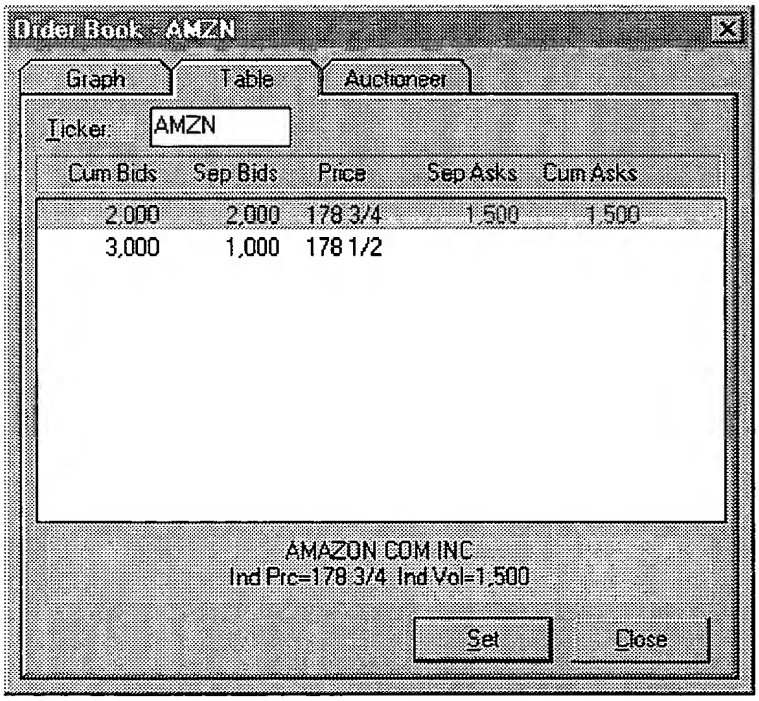
The first bid is placed: $178 1/2 for 1,000 shares.



Time remaining in Demo Auction: 00:12:23

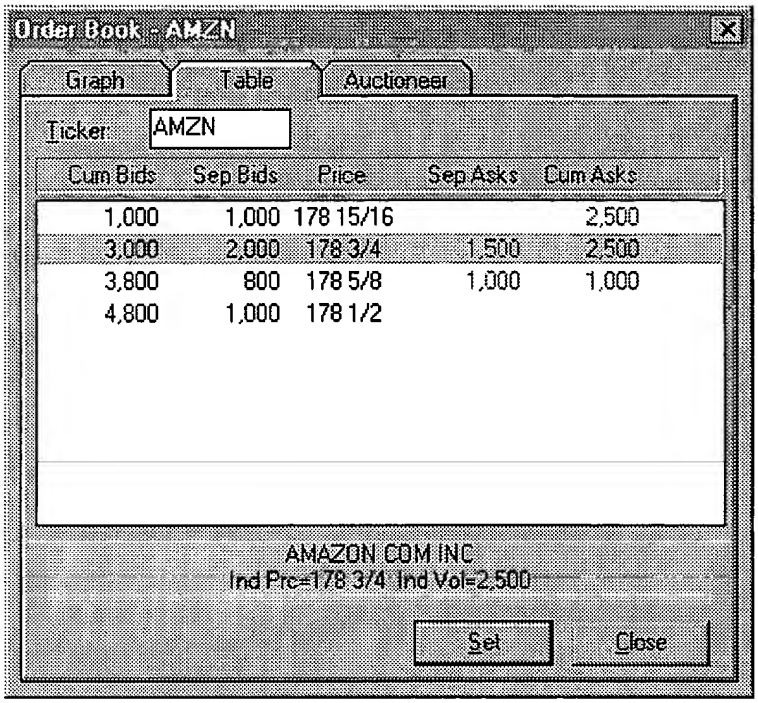
The first offer is placed above the first bid:

1,500 shares at $178 3/4.



Time remaining in Demo Auction: 00:09:15

A bid is placed at the offer, but no trade will take place until the Auction ends.

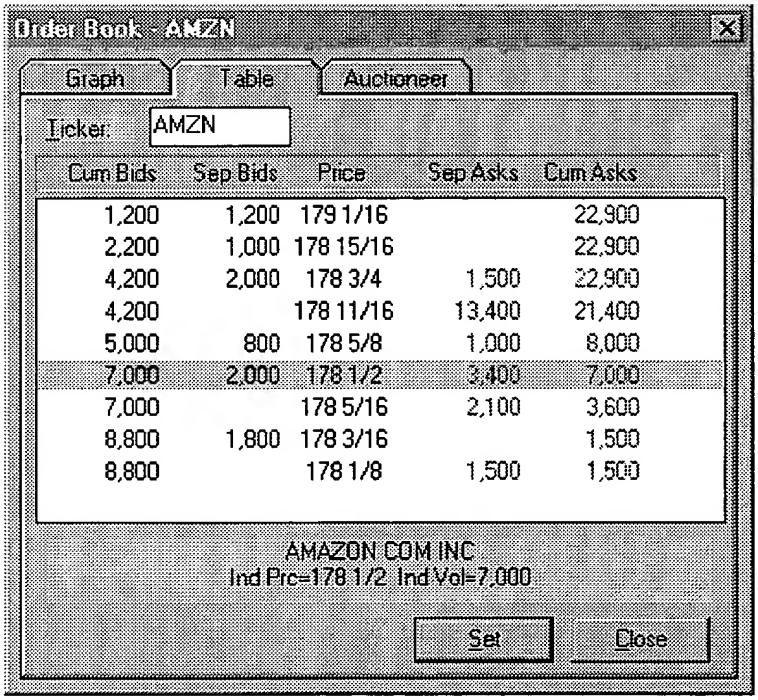


Time remaining in Demo Auction: 00:02:08

Several bids and offers are now through each other. The Auction Server constantly displays the current "Indicated Price" - The single price which will clear the most volume.

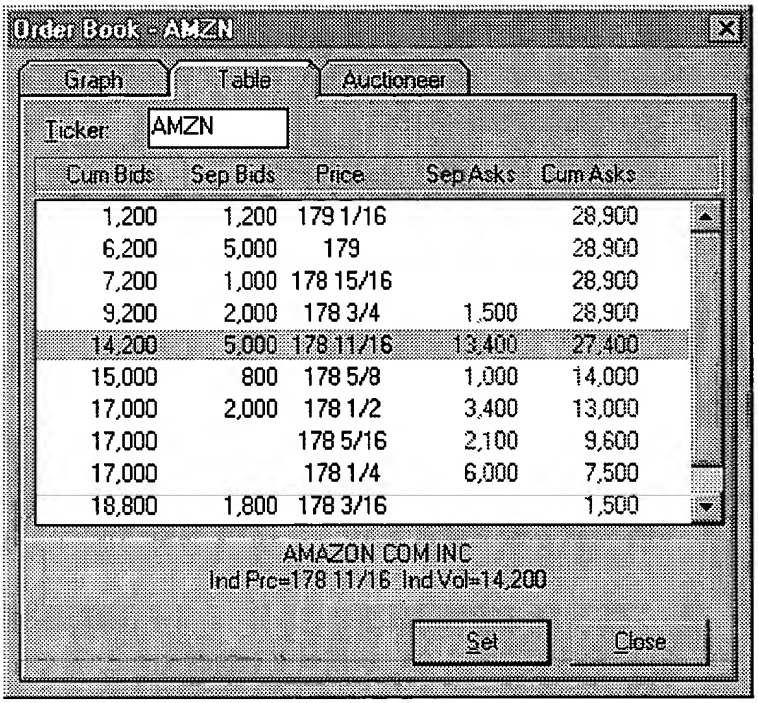
This price and volume are shown at the bottom and are highlighted by the gray bar in the table.

The "Cumulative Bids" and "Cumulative Asks" columns (on the outside) indicate the cumulative sums of the separate orders at any given price. They show aggregate demand (supply) at each price.



Time remaining in Demo Auction: 00:00:30

As the clock counts down, more orders are entered into the book.



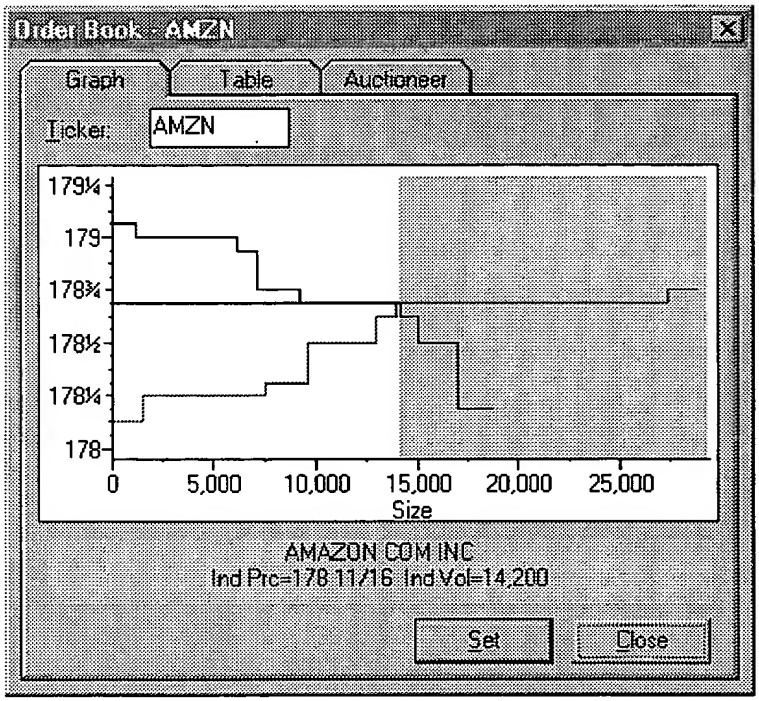
Time remaining in Demo Auction: 00:00:00

The Auction ends.

14,200 Shares trade at a clearing price of $178 11/16.

Every order that is eligible to trade will trade at $178 11/16. Many orders will get a better price relative to their limit, i.e., "price improvement".

This is a small example of what AZX is designed to generate - a large multi-party trade at a "Consensus Price".



Time remaining in Demo Auction: 00:00:00

This is a graphical representation of the table shown above.

The Bids are graphed to show a "Demand Curve" (In Blue).

The Offers are graphed to show a "Supply Curve " (In Red).

The point at which "Supply" and "Demand" meet is the single price which will clear the greatest number of shares.

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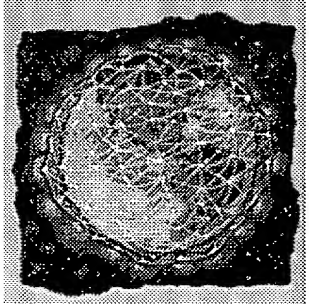

Queuing Auctions for New Product Introductions

Note: This is not the publication date. You should contact the author for it.

PETER WURMAN

It is often the case that new products are introduced for which demand exceeds supply. The recent introduction of Sony s Playstation II is one such example; buyers started lining up the day before the product went on sale. The entire supply of 980,000 Playstation IIs was sold out within hours. Other recent examples include Apple s iMac computers, Dodge s Viper, and Palm s hand-held organizers.

The fact that many people are willing to spend hours of their time to acquire one of these products indicates that they would also be willing to spend more money to purchase one. Indeed, in the case of highly desirable automobiles, the sale price often exceeds the manufacturers suggested retail price. Moreover, the fact that people are willing to stand in line for a day this week, rather than wait two weeks for more products to become available indicates that some consumers have a utility for the object that is a function of the time at which they acquire it.

In this project, we plan to explore auctions for this allocation problem. In particular, we will develop a queuing auction that sorts customers according to their bids and promises delivery based on the customer s position in the queue. It follows from previous work that we have done on scheduling that a straight forward auction that uses a variation of the second-price scheme will sort customers into an optimal delivery schedule when those customers utility is constant.

However, when we allow customers utilities to vary as a function of delivery time, it is not clear that they will sort

themselves optimally. Our initial investigation suggests that there are cases where misrepresenting one s value for the good can lead to an overall improvement in utility. In this project we will work out the incentive properties of the queuing auction with non-constant utility functions, and build a prototype of the auction on the existing AuctionBot platform (one soon to be set up at NCSU). We will then use the AuctionBot as an experimental platform on which to investigate agent designs. In particular, we plan to tie the question of agent design into our other work investigating techniques for the automatic generation of agent bidding strategies.

Auctions are already used extensively at the tail end of the product lifecycle. This project will demonstrate the value of using them for the introduction of new products. Eventually, we expect to see dynamic pricing used throughout the product lifecycle. In addition, queuing auctions could play a significant role in business to business transactions, especially in the area of just-in-time supply chains. We plan to tie the results of this project into other research we have proposed for scalable enterprise planning systems.

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